Appendix E

WAG 3 OU 3-14 White Paper Evaluation of Sites CPP-61, CPP-81, and CPP-82

Prior to ascertaining the extent of the PCB release, health physicists surveyed the surface soils and concrete transformer pad for radioactivity. Nine contaminated hot spots were detected with activities significantly higher than the 200 cpm background levels. Two hot spots were also detected on the concrete pad. Radioactively contaminated soil and concrete were removed from the transformer yard and disposed of as low level waste.

A sampling program (compliant with TSCA) was designed to determine the lateral and vertical extent of PCB soil contamination. In July of 1985, 30 samples were collected and analyzed for PCBs. Oil stained soil was visually observed to depths of 8 inches in the area to the east of the transformer pad. A PCB concentration of 30 ppm was detected in one surface soil sample collected adjacent to the northeast corner of the pad. PCB concentrations in all other samples were less than 10 ppm; PCB concentrations were below detection (0.5 ppm) in 11 samples.

Soil to the east of the transformer pad was removed and disposed of as a PCB waste to a depth of 18". Below 18", soil was removed and characterized in one foot increments; soil with PCB concentrations less than 10 ppm was backfilled, and soil with PCB concentrations greater than 10 ppm was packaged and shipped offsite for disposal. Soil from the west, north and south sides of the transformer pad was not contaminated with PCB oil and was used as backfill. The concrete transformer pad was removed intact on December 13, 1985 and disposed offsite as a PCB waste.

Since the release (and following site characterization and cleanup) a second concrete pad has been poured (Figure 1 above) outside the present transformer yard fenceline. The transformer this pad supported is out of service and has been removed.

CPP-61 Referenced Documents

- OU 3-14 Tank Farm Soil and Groundwater Remedial Investigation/Feasibility Study (RI/FS) Work Plan (Draft), DOE/ID-10676, Revision C, June 2000.
- Hazardous Waste Determination, Waste Area Group (WAG) 3 RI/FS, Operable Unit (OU) 3-01 (CPP-61), April 3 1997.
- Final Record of Decision, Idaho Nuclear Technology and Engineering Center, Operable Unit 3-13, Chapter 13 – Documentation of Significant Changes.
- Track 1 Decision Documentation Package, WAG 3, OU 3-01, Site CPP-61, PCB Spill in the CPP-718 Transformer Yard, January 1993.

Evaluation of No Further Action Determination

Guidance provided by OWSER Directive 9355.4-0, *Guidance on Remedial Actions for Superfund Sites with PCB Contamination* (EPA/540/G-90/007), August 1990, recommends cleanup of soils with PCB concentrations from 10-25 ppm at restricted access industrial areas. Recommended cleanup levels are based on and dependent upon site-specific risk and anticipated future land use. TSCA requirements for PCB spill cleanup (40 CFR 761.25) apply "to all spills of PCBs at concentrations of 50 ppm or greater. . ." and, based on site characterization, are not explicitly applicable. The CPP-61 PCB spill response with regard to initial assessment; site characterization; and soil, concrete and debris removal, storage and disposal was compliant with all applicable regulations.

The concern expressed in the OU 3-13 ROD relates to the soil under the existing concrete pad. This pad was poured following characterization and cleanup activities. There is no empirical evidence to support concerns that PCB concentrations below the pad exceed the concentrations allowed in the backfilled soil,

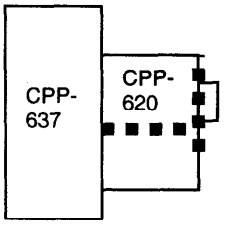
or 10 ppm. The available Track 1 analytical data supports this conclusion. This evaluation therefore supports the CPP-61 Track 1 determination of no further action.

Idaho Nuclear Technology and Engineering Center, WAG 3
OU 3-14 White Paper Evaluation
CPP-81, Abandoned CPP 637/CPP 620 VOG Line

Summary of CPP-81 Contaminant Release

The Idaho Nuclear Technology and Engineering Center (INTEC) [formerly known as the Idaho Chemical Processing Plant (ICPP)], is located at the Idaho National Engineering and Environmental Laboratory (INEEL) [formerly known as the Idaho National Engineering Laboratory (INEL)] 42 miles west of Idaho Falls. CPP-81 (Figure 1 below), is the Waste Area Group (WAG) 3) OU 3-14 soil site where a 3-in vessel off-gas (VOG) line located 2-3 ft below the CPP-620 concrete floor became plugged in 1986. The line was flushed in 1993 under a CERCLA Time-Critical removal action to remove suspected hazardous constituents.

Figure 1: Approximate CPP-82 location; 3-in VOG line located 2-3 ft Below CPP-620 running East under an asphalt pad.



The CPP-81 VOG line transferred off-gas for pilot plants in the High Bay (CPP-620), the CPP-637 PIF Low Bay Addition, and the CPP-637 Low Bay Modification. The line became plugged on October 21, 1986 during Enclosed 30-cm Diameter Calciner Pilot-plant Run #15 calcining a feed of simulated (non-radioactive) zirconium waste. During the run, calciner fines bypassed the cyclone and off-gas scrub system and collected in and clogged the underground VOG line. This incident was attributed to a failure of the rupture disk on the calciner vessel.

Calcine from Run #15 contained concentrations of the heavy metals Cd and Cr. In addition to these contaminants, process data indicates the VOG line potentially contained trace concentrations of Hg, Co, Pb, Sr, Cs, Ce, Hexone, petroleum distillates, and U-238, 235 as previous testing residual. There is no evidence to suggest the incident resulted in a release to the environment.

Summary of CPP-81 Spill Response

Short term response to the incident included the installation of a new off-gas line re-routed around the plugged portion of the VOG line. The upstream end of the plugged VOG line was capped; the downstream end of the line remained connected to the plant VOG system.

In mid-September 1993 a time-critical CERCLA removal action was conducted at CPP-81. The intent of the action was to disconnect the downstream end of the clogged VOG line from the plant VOG system, dissolve the calcine out of the line with a series of nitric acid rinses, rinse the line with water, and abandon the line in place. Analysis of the final water rinse was used to verify that the abandoned VOG line no longer contained hazardous contaminants at concentrations above regulatory concern (40 CFR 261.24 TCLP concentrations).

The VOG line flush consisted of 5 nitric acid washes and 14 water rinses. Analysis of the initial acid wash revealed cadmium and chromium concentrations of 465 ppm and 190 ppm, respectively. Analysis of the final water rinse revealed concentrations of cadmium of 0.17 ppm and 0.12 ppm, respectively. Regulatory concern concentrations for these contaminants are 1.0 mg/l cadmium and 5.0 mg/l. Laboratory analysis for suspected trace compounds was not conducted. The VOG line was capped and abandoned in place.

CPP-81 Referenced Documents

- OU 3-14 Tank Farm Soil and Groundwater Remedial Investigation/Feasibility Study (RI/FS) Work Plan (Draft), DOE/ID-10676, Revision C, June 2000.
- Track 1 Decision Documentation Package, Waste Area Group 3, Operable Unit 12, Site CPP-81, Abandoned CPP-637/CPP-620 VOG Line, Revision 2, April 1994.
- Telephone conversation between Troy Thomson (SAIC) and T.S. Yoder (INTEC), September 27, 2000.

Evaluation of No Further Action Determination

The OU 3-14 Tank Farm Soil and Groundwater RI/FS states that the decision to transfer CPP-81 from OU 3-13 to OU 3-14 was based on inadequate data used in the OU 3-13 RI/FS to make remediation decisions. The document also notes that it is anticipated that a final decision can be reached based on documented historical information.

The CPP-81 Track 1 decision documentation package, reviewed and approved by DEQ, EPA and DOE-ID, recommended no further action. There is no evidence that indicates an uncontrolled release resulting from the clogged VOG line. There is also no evidence to suggest an uncontrolled release during the acid/water wash corrective action. The analytical data from the final water wash clearly indicates that the cadmium and chromium concentrations were reduced to levels below regulatory concern. Although final water wash analytes did not include the trace compounds process data indicated may be present in the VOG line, it is correct to assume that the rigorous nature of the multiple nitric acid washes would render the concentrations of suspected trace compounds to levels well below regulatory concern. This evaluation therefore supports the CPP-81 Track 1 determination of no further action.

Revision 1 of the Track 1 Decision Documentation approved in 1992 determined that *no further action* is required with regard to CPP-82. The decision to transfer this no further action site to OU 3-14 in the OU 3-13 Record of Decision (ROD) was based on uncertainties regarding the adequacy of the data used in the OU 3-13 RI/FS to make remediation decisions.

Summary of CPP-82 Spill Response

The Site A rupture of abandoned line PLA-776 (1.5" plastic pipe) resulted in the release of approximately 2.5 gallons of low-level radioactive liquid waste. This line transferred low-level liquid waste from CPP-603 to service buildings replaced by CPP-797. The area of the spill was surveyed and contaminated soil was removed and disposed as a low-level waste. PLA-776 was cut and capped using compatible materials based on standard practices and left in place.

Site B includes three subsurface pipe locations B-1, B-2, and B-3. The three lines ran parallel to one another from the Fluorinel Dissolution and Process Storage (FAST) facility to a valve box along Beech Avenue. Site B-1, line CT-NC-125721 (2" steam heating condensate line) was damaged at two locations: near Site A, and a middle location west of Site A. The line was severely distorted; corrective action included line repair. No radioactive or hazardous contamination is attributed to this incident. Site B-2, line XW-NL-129167 from the water treatment facility (2" plastic chemical waste line) was severely damaged west of Site A. HCl and NaOH was added as needed to bring the transferred waste water to a neutral pH. No radioactive or hazardous contamination is attributed to this site. Site B-3, line SW-AD-128987 (3" plastic service waste line) was deformed west of Site A. The service waste line transferred cooling water contaminated with mixed fission products (Cs, Sr, I) and below Track 1 risk-based concentrations of TCE, Hg, and Cd. The line was not ruptured and no spill was reported. The line was later replaced.

Site C includes subsurface pipes SWNH-110717 and SWNH-110718. At the time the backhoe struck and ruptured both lines, only line SWNH-110717 was in service. This 6" plastic line carried blowdown water from the steam plant, after it was monitored, from CPP-734 to the percolation ponds. Following the rupture, transferred water flow from CPP-734 was reduced and temporarily diverted Released blowdown water, estimated to be no more than 500 gallons was pumped from the excavation hole to the ICPP drainage ditch system. The line was repaired and placed back into service. Line SWNH-110718 was placed into service following the incident and subsequently was found to have ruptured. That line, transferring non-hazardous, non-radioactive reject waste water from the CPP-734 reverse osmosis system to the percolation ponds, was repaired at a later date.

CPP-82 Referenced Documents

- OU 3-14 Tank Farm Soil and Groundwater Remedial Investigation/Feasibility Study (RI/FS) Work Plan (Draft), DOE/ID-10676, Revision C, June 2000.

- Track 1 Decision Documentation Package, Waste Area Group Operable Unit 12, Site CPP-82, Abandoned Line 1.5 kn. – PLA-776 W. of Beech Street, Revision 1, December 1992.

Evaluation of No Further Action Determination

The OU 3-14 Tank Farm Soil and Groundwater RI/FS states that the decision to transfer CPP-82 from OU 2-13 to OU 3-14 was based on inadequate data used in the OU 3-13 RI/FS to make remediation decisions. The document also notes that it is anticipated that a final decision can be reached based on documented historical information.

CPP-82 is comprised of five incident sites. Two of those incidents, Site B-1 and B-3 did not result in a release. Site B-2 resulted in the release of waste water with no known hazardous contaminants. Soil contaminated by low-level radioactivity was collected and packaged for disposal. The site was surveyed following the corrective action. The Site A line rupture resulted in the release of a small volume (~2.5 gallons) of low-level radioactive liquid service waste. The spill was contained within the excavation hole and all contaminated soil was collected and packaged for disposal. The site was surveyed following the corrective action.

The Site C incident resulted in a ruptured underground line that transferred monitored service waste to the percolation ponds. Approximately 500 gallons of waste filled the excavation hole before flow could be curtailed and diverted. The waste was pumped to the ICPP drainage ditch system; subsequent survey of the spill site did not reveal radioactive contamination. Historical analytical data did not indicate concentrations of hazardous constituents above site-specific risk-based concentrations.

The CPP-82 Track 1 decision documentation package, reviewed and approved by DEQ, EPA and DOE-ID, recommended no further action. Although soil characterization following incident corrective action was limited to radioactive survey, historical and process data does not indicate that hazardous constituents were released to surrounding site soils. This evaluation therefore supports the CPP-82 Track 1 determination of no further action.